

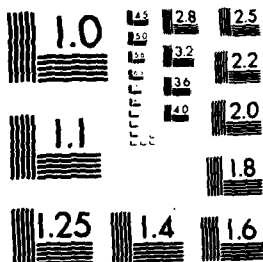
AD-A094 179 FRANK J SEILER RESEARCH LAB UNITED STATES AIR FORCE A--ETC F/G 5/10
BRIEF TREATMENT OF TEST ANXIETY WITH COGNITIVE MODIFICATION.(U)

UNCLASSIFIED DEC 80 R L HUGES, L L WHEELER
FJSRL-TR-80-0021

NL

END
DATE
FILMED
+2 - 8h
DTIC

1 OF 1
94179



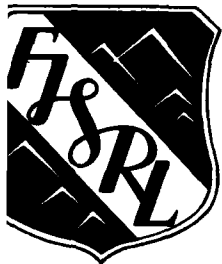
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A



AD A094179

FILE COPY





LEVEL II

②
KH

FRANK J. SEILER RESEARCH LABORATORY

**FJSRL TECHNICAL REPORT
80-0021**

DECEMBER 1980

**DTIC
ELECTE
JAN 27 1981
S D E**

**BRIEF TREATMENT OF TEST ANXIETY
WITH COGNITIVE MODIFICATION**

**MAJOR RICHARD L. HUGHES
CAPTAIN LARRY L. WHEELER**

PROJECT 2303

**APPROVED FOR PUBLIC RELEASE;
DISTRIBUTION UNLIMITED.**



**AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE**

81 1 26 152

FJSRL-TR-80-0021

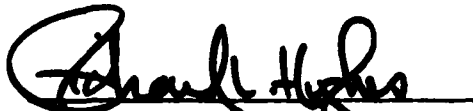
This document was prepared by the Energetic Materials Division, Directorate of Chemical Sciences, Frank J. Seiler Research Laboratory, United States Air Force Academy, Colorado. The research was conducted under Project Work Unit Number 2303-F1-52, Assessment Procedures for Stress Management Training in an Academic Setting. Major Richard Hughes was the Project Scientist in charge of the work.

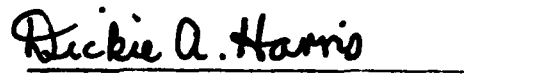
When U.S. Government drawings, specifications or other data are used for any purpose other than a definitely related Government procurement operation, the Government thereby incurs no responsibility nor any obligation whatsoever, and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications or other data is not to be regarded by implication or otherwise, as in any manner licensing the holder or any other person or corporation or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

Inquiries concerning the technical content of this document should be addressed to the Frank J. Seiler Research Laboratory (AFSC), FJSRL/NC, USAF Academy, Colorado 80840, Phone Area Code (303) 472-2655.


This report has been reviewed by the Chief Scientist and is releasable to the National Technical Information Service (NTIS). At NTIS it will be available to the general public, including foreign nations.

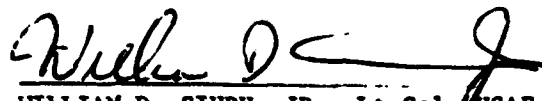
This technical report has been reviewed and is approved for publication.


RICHARD L. HUGHES, Major, USAF
Project Scientist


DICKIE A. HARRIS, Major, USAF
Director of Research, Department of
Behavioral Sciences and Leadership

FOR THE COMMANDER


KENNETH E. SIEGENTHALER, Lt Col, USAF
Director, Directorate of Chemical
Sciences


WILLIAM D. SIURU, JR., Lt Col, USAF
Chief Scientist

Copies of this report should not be returned unless return is required by security considerations, contractual obligations, or notice on a specific document.

Printed in the United States of America. Qualified requestors may obtain additional copies from the Defense Documentation Center. All others should apply to:

National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER FJSRL-TR-80-0021	2. GOVT ACCESSION NO. ADA AD-A014 479	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Brief Treatment of Test Anxiety with Cognitive Modification.		5. TYPE OF REPORT & PERIOD COVERED Final Rept. October 1979-December 1980
7. AUTHOR(s) Richard L. Hughes, Major, USAF Larry L. Wheeler, Captain, USAF		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Department of Behavioral Sciences and Leadership U.S. Air Force Academy, Colorado 80840		8. CONTRACT OR GRANT NUMBER(s) (S) 23.1
11. CONTROLLING OFFICE NAME AND ADDRESS Frank J. Seiler Research Laboratory (AFSC) U.S. Air Force Academy, Colorado 80840		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 2303 F1-52 (17) F1
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) (11) L-20		12. REPORT DATE
		13. NUMBER OF PAGES
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) test anxiety cognitive modification		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) - Cognitive modification has become a popular treatment for test anxiety. Unlike other treatments, it has led to improvements in academic performance as well as to decreases in test anxiety. The present study evaluated a brief cognitive modification treatment of test anxiety which was approximately one-half as long as previous effective treatments. This four session treatment led to significant decreases in test anxiety relative to a relaxation control group and a no treatment control group but not to improvement on the WAIS Digit Symbol sub-test. Neither was there any improvement in treatment groups in GPA after		

DD FORM 1473

EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

20. (continued)
➤ treatment or one year later. There was improvement in GPA in the no
treatment control group. ↙

UNCLASSIFIED

Brief Treatment of Test Anxiety with Cognitive Modification

Abstract

Cognitive modification has become a popular treatment for test anxiety. Unlike other treatments, it has led to improvements in academic performance as well as to decreases in test anxiety. The present study evaluated a brief cognitive modification treatment of test anxiety which was approximately one-half as long as previous effective treatments. This four session treatment led to significant decreases in test anxiety relative to a relaxation control group and a no treatment control group but not to improvement on the WAIS Digit Symbol sub-test. Neither was there any improvement in treatment groups in GPA after treatment or one year later. There was improvement in GPA in the no treatment control group.

Accession For	
NTIS GRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/ _____	
Availability Codes	
Dist	Avail and/or Special
A	

Brief Treatment of Test Anxiety with Cognitive Modification

Richard L. Hughes and Larry L. Wheeler

For many years the primary treatment for test anxiety has been systematic desensitization. In terms of Liebert and Morris's (1967) distinction between the cognitive and emotional components of test anxiety, the effort for a long time has been directed toward modifying emotionality, or physiological overarousal. The assumption behind desensitization is that anxiety is primarily a problem of physiological overarousal. Anxiety can be reduced presumably if lowered physiological arousal can be achieved in the testing situation.

This approach has been partially successful in that systematic desensitization is rather consistently effective in reducing self-reported test anxiety (Spielberger, Anton, and Bedell, 1976). However, evidence is accumulating which suggests that treatments designed to reduce emotionality may not be effective in improving academic performance (Spielberger et al; Hughes, 1979).

An approach that appears more promising is directed toward the cognitive component of test anxiety. Wine (1971) argued persuasively that test anxiety is not so much a problem of overarousal as it is one of dysfunctional attentional processes during academic evaluations. For example, test-anxious individuals frequently engage in task-irrelevant distractive behaviors such as self-criticism. Wine developed an attentional training program for treating test anxiety and she reported improvement on two standardized performance measures among participants in her program. Meichenbaum (1972) developed a cognitive modification approach which was successful in improving the grade point average of test anxious persons. Holroyd (1976) developed a cognitive treatment derived largely from rational-emotive therapy which was significantly more effective than desensitization in improving performance on several measures.

Dissatisfaction with treatments designed to reduce emotionality is also growing because of evidence that seems to contradict their basic premise. Such treatments are based on the premise that test-anxious persons are physiologically overaroused relative to others in stressful situations. Yet, the results of at least two recent studies refute that view. Holroyd, Westbrook, Wolf and Radhorn (1978) investigated whether there are differences in physiological response between high and low test-anxious individuals in testing situations. The groups showed virtually identical changes in electrodermal activity and heart rate, a finding inconsistent with the view that test-anxious persons are physiologically overaroused. Also, Hughes (1979) demonstrated that the frontalis muscle tension of test-anxious individuals was no greater during imagined evaluative experiences than were those of persons low in test anxiety. This finding supports the view that test anxiety is more a matter of self-labeling than physiological overactivity.

It should be noted that various studies have reported results either supportive of the "emotionality" view or inconsistent with the "cognitive" view. Bronzaft and Stuart (1971) reported differences in GSR reactivity between high and low test-anxious persons. Finger and Galassi (1977) failed to obtain performance improvement following a cognitive treatment. Likewise, Parker (1980) failed to obtain performance improvements with test anxious subjects following a cognitive treatment using similar procedures as Holroyd. Nevertheless, the overall evidence suggests that treatments which emphasize the modification of cognitive and attentional responses during test-taking may be more efficacious than those which emphasize the modification of emotional responses.

Because of the number of persons who experience test anxiety, which may be fifteen percent of all college students, it is important to develop effective yet brief treatments for it. Since cognitive modification has been relatively successful in improving performance,

this study evaluated the effectiveness of a brief cognitive modification program. Holroyd reported performance changes following a spaced, seven hour treatment program; the present study evaluated a program approximately one-half that long.

METHOD

Subjects. Twenty-four freshmen at the Air Force Academy participated in this study. They were selected on the basis of high scores on the Test Anxiety Inventory (Spielberger, Gonzalez, Taylor, Algaze, and Anton, 1978), which had been administered to all students in an introductory psychology class. The average TAI score for these subjects was 57.1. The mean for all freshmen was 35.6 (S.D. = 10.8). Ss were assigned to three groups: a cognitive modification group, a relaxation control group, and a no treatment control group.

Treatments. Ss participated in one pretesting session, four training sessions and one posttesting session. The no treatment control subjects were only contacted at pretesting and posttesting. The training sessions each lasted forty-five minutes and they were spaced over a two and one-half week period. At the testing sessions Ss completed the WAIS Digit Symbol sub-test, which has been used as a performance measure in previous studies of test anxiety (Finger and Galassi, 1977). At posttesting Ss were readministered the TAI. Grade point average provided an unobtrusive performance measure.

Ss in the cognitive modification group received lecturettes on the attentional control of behavior and self-defeating cognitions during tests. Ss practiced attentional control and became more aware of their distractibility during various exercises. Ss spent approximately one-half of their treatment time visualizing testing scenarios and covertly rehearsing constructive coping behaviors (e.g. what to say to yourself as tests are being passed out; what to say to yourself when you cannot decide between various multiple-choice alternatives).

Ss in the relaxation control group practiced deep relaxation while

listening to several commercially available audio cassettes which included progressive relaxation and autogenic training elements. Ss were advised that training in deep relaxation would remedy test anxiety.

RESULTS

Results are summarized in Tables 1 - 3. Test anxiety decreased in the cognitive modification and relaxation groups although somewhat more so in the former. Performance on the Digit Symbol sub-test improved in all groups by a consistent but nominal amount suggesting practice effects. The grade point averages refer to mid-term grades just prior to study, the final semester grades are for that same semester (after the study), and semester grades one year later. They clearly indicate that GPA did not improve in either treatment group. However, improvement did occur in the no-treatment control group.

	Before Treatment		After Treatment	
	\bar{X}	S.D.	\bar{X}	S.D.
Cog-modification	57.2	8.4	38.2	8.53
Relaxation	54.1	4.2	41.7	13.0
No treatment	60.0	5.2	57.0	8.2

Table 1. Means and standard deviations on the Test Anxiety Inventory before and after treatment.

	Before Treatment		After Treatment	
	\bar{X}	S.D.	\bar{X}	S.D.
Cog-modification	68.2	13.6	71.1	14.3
Relaxation	69.4	11.4	75.1	8.3
No treatment	67.3	9.7	72.0	11.2

Table 2. Means and standard deviations on the Digit Symbol test before and after treatment.

	Before Treatment		After Treatment		One-year Follow-up	
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.
Cog-modification	2.13	.25	2.14	.37	2.02	.78
Relaxation	2.60	.38	2.61	.63	2.54	.55
No treatment	2.35	.73	2.59	.55		

Table 3. Means and standard deviations of GPA before and after treatment (GPA on a 4-point system).

DISCUSSION

As in numerous previous studies, treatments for test anxiety had differential effects upon self-report and performance measures. Ss from both the cognitive modification and relaxation control groups reported significant decreases in test anxiety yet neither group demonstrated improvement in academic performance. Furthermore, it is not likely that the failure to detect any improvement in GPA following treatment was due to any latency period in the manifestation of improvement; a one-year follow-up still did not reflect improvement in GPA in the treatment groups. The greater decreases in test anxiety in the cognitive modification group should be attributed to the greater interaction with E which Ss in this group experienced.

The absence of performance improvement was unanticipated in the cognitive modification group since that type of treatment previously had been reasonably effective in improving performance. Two factors may account for this negative finding. It may have been the shortened treatment in the present study which was responsible. The purpose of this study was to determine whether brief treatments are viable in the cognitive modification of test anxiety and perhaps four sessions are too few to obtain performance effects. However, it is not likely that just this factor accounted for the results. Finger and Galassi did not observe any performance improvement with cognitive procedures and their treatment involved eight sessions as did Parker's. Parker

concluded that cognitive modification, as with systematic desensitization, may only reliably show effects on self-reported test anxiety. Improvements in academic performance may only be likely through other avenues such as study skills counseling. The results of the present study certainly add to the increasing pessimism (e.g. in Spielberger et al, 1976) about the efficacy of treatment programs.

A word should be added about the unanticipated improvement in GPA in the no treatment control group. While its significance should not be exaggerated, this change is interesting in that unlike the other groups, not a single student in this group declined in GPA. Perhaps Ss in this group received some other kind of assistance during the same time period, an assistance which may have seemed impractical or unnecessary to subjects in the treatment groups. Maybe some treatments for test anxiety not only are ineffective in improving academic performance but may actually discourage the pursuit of different potentially fruitful avenues of help.

REFERENCES

- Bronzaft, A.L. & Stuart, I.R. Test anxiety, GSR, and academic achievement. Perceptual and Motor Skills, 1971, 33, 535-538.
- Finger, R. & Galassi, J.P. Effects of modifying cognitive versus emotionality responses in the treatment of test anxiety. Journal of Consulting and Clinical Psychology, 1977, 45, 280-287.
- Holroyd, K.A. Cognition and desensitization in the group treatment of test anxiety. Journal of Consulting and Clinical Psychology, 1976, 44, 991-1001.
- Holroyd, K.A., Westbrook, T., Wolf, M. & Badhorn, E. Performance, cognition, and physiological responding in test anxiety. Journal of Abnormal Psychology, 1978, 87, 442-451.
- Hughes, R.L. Electromyographic biofeedback in the desensitization of test anxiety. Paper presented at the American Psychological Association annual convention, New York City, 1979.
- Liebert, R.M., & Morris, L.W. Cognitive and emotional components of test anxiety: A distinction and some initial data. Psychological Reports, 1967, 20, 975-978.
- Meichenbaum, D. Cognitive modification of test anxious college students. Journal of Consulting and Clinical Psychology, 1972, 39, 370-380.
- Spielberger, C.D., Anton, W.D., & Bedell, J. The nature and treatment of test anxiety. In M. Zuckerman & C.D. Spielberger (Eds.) Emotions and Anxiety: New concepts, methods and applications. New York: LEA/Wiley, 1976.
- Spielberger, C.D., Gonzalez, H.P., Taylor, C.J., Algaze, B., & Anton, W.D. Examination Stress and Test Anxiety. In C.D. Spielberger and I.G. Sarason (Eds.) Stress and Anxiety, New York: Hemisphere/Wiley, 1978.
- Wine, J. Test anxiety and direction of attention. Psychological Bulletin, 1971, 76, 92-104.